



# OIT's Agriculture Partnership Portfolio

## Plant Science & Production

- ◆ Pine Gene Discovery Project
- ◆ Molecular Physiology of Nitrogen Allocation in Poplar Trees
- ◆ Energy Efficient Irrigation
- ◆ Precision Farming For Agriculture
- ◆ Diagnosis of Soil Limitations to Productivity
- ◆ Nutrient Limitations in Southern Pine
- ◆ Growth Traits in Pinus Taeda L
- ◆ Genes to Accelerate Pine Development
- ◆ Negative Mutations of Floral Genes
- ◆ Genetic Variation of Fiber Components
- ◆ Regulation of Crown Architecture

## Energy

- ◆ Efficient Steam Systems
- ◆ Advanced, Efficient Motor Systems
- ◆ Efficient Compressed Air Systems
- ◆ Black Liquor Gasification
- ◆ Energy and Waste Audits
- ◆ Anaerobic Pump
- ◆ Irrigation Valve Energy Saver
- ◆ DSP Power Electronics Systems for Renewable Energy Systems

## Processing

- ◆ Catalytic Upgrading of Glucose
- ◆ Products from Wheat-milling Byproducts
- ◆ Chemicals from Lignocellulose
- ◆ Industrial Chemicals from Levulinic Acid
- ◆ Separator for Ethanol From Cellulosics
- ◆ Novel Membrane Process for Lactate Esters
- ◆ Production of Succinic Acid from Biomass
- ◆ Lactic Acid From Renewable Resources
- ◆ Corn Fiber to Polyols
- ◆ Clean Fractionation for Cellulose Plastics
- ◆ Hydrolysis of Lignocellulose
- ◆ Industrial Membrane Filtration
- ◆ Yeast for Fermentation of Biomass to Chemicals
- ◆ Propanediol From Fermentation-Derived Malonic Acid
- ◆ Isosorbide Production Using Solid Acid Catalysts
- ◆ Separation Process for Bio-Based Succinic Acid
- ◆ Butyric Acid and Butanol From Biomass
- ◆ Reversible Chemical Association Separation
- ◆ Continuous Saccharification of Ligno-Cellulose
- ◆ Membrane Reactor for Fischer Tropsch Synthesis
- ◆ Novel Catalyst for  $\text{CH}_4$  to CO Conversion

## Utilization

- ◆ Improved Catalytic Enzymes
- ◆ Utilization of Corn-based Polymers
- ◆ Soy-based 2-Cycle Engine Oils
- ◆ Plastics and Fibers from Biobased Succinic Acid
- ◆ Vegetable Oils as Polymer Building Blocks
- ◆ Renewable Fine Chemicals
- ◆ High Value Products From Wheat

## Environment

- ◆ Paper Mill Sludge and Agriculture Waste Utilization
- ◆ Low Temperature Catalytic Gasification of Aqueous Streams

## Recycling

- ◆ Electrodeionization for Recovery and Recycling of Waste and Water
- ◆ Use of Residual Solids for Concrete
- ◆ Ceramic Membranes with  $\text{CO}_2$  Transport Channel

OIT Cost: \$32 million

Cost Share: \$26 million

Total Cost: \$58 million

Revised  
1/9/01